

WHAT IS CLAIMED IS:

1. A download method for downloading data from a delivery server to a plurality of user terminals, comprising the steps of:

forming a download user network with a plurality of user terminals which download same data;

said delivery server dividing said data into data portions so that said data portions are assigned to said plurality of user terminals, respectively;

downloading said assigned data portions from said delivery server to said plurality of user terminals, respectively; and

mutually transmitting said downloaded data portions among said plurality of user terminals so that each of said plurality of user terminals obtains all said data portions which constitute said data.

2. A download method as in claim 1,

wherein said dividing step is performed according to a number of said plurality of user terminals.

3. A download method as in claim 2, said forming step further comprising the steps of:

selecting one of said plurality of user terminals as a representative user terminal; and

said representative user terminal transmitting information from which the number of said plurality of user terminals is obtained to said delivery server.

4. A download method as in claim 3, said forming step further comprising the steps of:

said representative user terminal gathering communication environment information on each of said plurality of said user terminals; and

said representative user terminal transmitting said gathered communication environment information to said delivery server,

wherein said dividing step is performed according to said communication environment information.

5. A download method as in claim 4,

wherein said dividing step is performed so that said data portions overlap each other according to said communication environment information.

6. A download method as in claim 3,

wherein said representative user terminal notifies said delivery server of an addition of a new user terminal to said download user network if said new user terminal joins said download network between completion of said forming step and beginning of said mutual transmitting step,

wherein said delivery server redivides said data into new data portions in response to the addition of said new user terminal so that said new data portions are reassigned to said new user terminal and said plurality of said user terminals,

respectively, and

wherein said downloading step is achieved by downloading said reassigned data portions from said delivery server to said new user terminal and said plurality of user terminals, respectively.

7. A download method as in claim 3,

wherein a new user terminal obtains all said data portions which constitute said data from said plurality of user terminals during said mutual transmitting step if said new user terminal joins said download user network between completion of said forming step and beginning of said mutual transmitting step.

8. A download method as in claim 3,

wherein if one of said plurality of user terminals is disconnected from said delivery server between completion of said forming step and beginning of said mutual transmitting step, said delivery server redivides said data into new data portions so that said new data portions are reassigned to said plurality of user terminals except said disconnected user terminal, and

wherein said downloading step is achieved by downloading said reassigned data portions from said delivery server to said plurality of user terminals except said disconnected user terminal, respectively.

9. A download method as in claim 3,

wherein said representative user terminals gives said

plurality of user terminals an instruction to start the mutual transmitting step when said representative user terminal determines that said downloading step is completed in all said plurality of user terminals, and

wherein said mutual transmitting step is started simultaneously in all said plurality of user terminals in response to said instruction.

10. A download method as in claim 1,

wherein said mutual transmitting step is started severally in each of said plurality of user terminals when said downloading step is completed in the user terminal.

11. A download method as in claim 1, said dividing step further comprising the steps of:

generating a split download map including information on correspondence between said plurality of user terminals and said data portions assigned thereto; and

attaching said split download map to each of said data portions,

wherein said split download map is downloaded with each of said data portions to each of said plurality of user terminals in said downloading step.

12. A user terminal for downloading data from a delivery server comprising:

means for forming a download user network with at least

one other user terminal which downloads same data as said user terminal downloads;

means for downloading a data portion of said data from a delivery server;

means for transmitting said downloaded data portion to said other user terminal and receiving rest of said data from said other user terminal; and

means for combining said downloaded data portion and said received rest into said data.

13. A delivery server for delivering same data to a plurality of user terminals comprising:

means for dividing said data into data portions so that said data portions are assigned to said plurality of user terminals, respectively; and

means for transmitting said assigned data portions to said plurality of user terminals, respectively.

14. A download method for downloading data from a delivery server to a plurality of user terminals, comprising the steps of:

forming a download user network with a plurality of user terminals which download same data;

selecting one of said plurality of user terminals as a representative user terminal of said download user network;

downloading said data from said delivery server to said representative user terminal; and

transmitting said downloaded data from said representative user terminal to each of said plurality of user terminals.

15. A download method as in claim 14,

wherein a user terminal whose parameter representing the communication environment of the user terminal is the highest among said plurality of user terminals is selected as said representative user terminal in said selecting step.

16. A download method as in claim 14,

wherein said downloading step is achieved by dividing said data into data portions and sequentially downloading said data portions from said delivery server to said representative user terminal, and

wherein said transmitting step is started during said downloading step so that each of said data portions is transmitted to each of said plurality of user terminals immediately after the data portion is received.

17. A download method as in claim 14,

wherein said transmitting step is started during said downloading step so that said representative user terminal sequentially extracts a data fragment from an already received portion of said data and transmits said data fragment to each of said plurality of user terminals immediately after said portion is received.

18. A user terminal for downloading data from a delivery server comprising:

means for forming a download user network with at least one other user terminal which downloads same data as said user terminal downloads;

means for downloading said data from a delivery server as a representative user terminal of said download user network; and

means for transmitting said downloaded data to said other user terminal as said representative user terminal.

19. A download system for downloading same data to a plurality of user terminals comprising:

a plurality of user terminals capable of forming a local area network; and

a delivery server capable of communicating with said plurality of user terminals,

wherein said data is divided into data fragments and said data fragments are assigned to said plurality of user terminals, respectively, and

wherein said plurality of user terminals download said assigned data fragments from said delivery server, and exchange said downloaded data fragments with one another via said local area network so that each of said plurality of user terminals obtains all the data fragments which constitute said data.

20. A download system as in claim 19,  
wherein said delivery server communicates with said plurality of user terminals via a wide area network.

21. A download system for downloading same data to a plurality of user terminals comprising:

a plurality of user terminals capable of forming a local area network; and

a delivery server capable of communicating with said plurality of user terminals,

wherein one of said plurality of user terminals downloads said data from said delivery server, and transmits said downloaded data to others of said plurality of user terminals via said local area network.

22. A download system as in claim 21,  
wherein said delivery server communicates with said plurality of user terminals via a wide area network.